The effect of NLP-based approach to teaching surgical procedures to senior OBGYN residents

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Introduction- Each individual has a unique way of learning which is based on personal background (1). Neuro Linguistic Programming is an ideology of communicating with an individual. It can be applied in social relations like teaching fields (2). Each medical student deals with a set of new information in his unique way. For example with regard to the following text on vacuum extraction, one learner focuses on definition, while the other focuses on spelling, and the third one just on shapes (3).

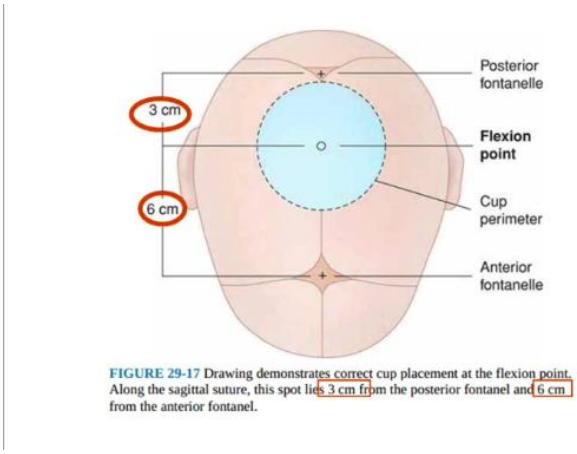

fig1- Student A points of focus

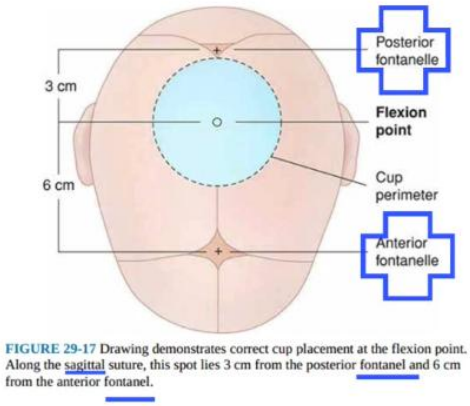

fig1-student B points of focus

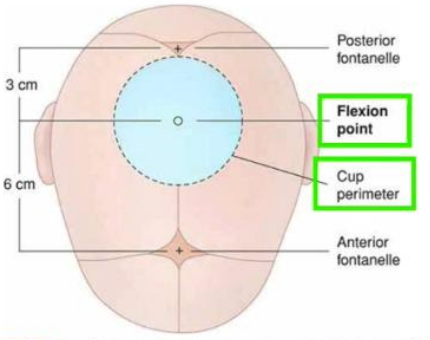

FIGURE 29-17 Drawing demonstrates correct cup placement at the flexion point. Along the sagittal suture this spot lies 3 cm from the posterior fontanel and 6 cm from the anterior fontanel.

fig1-Student C points of focus

Learning is a change in behavior (4) and NLP is teaching is to change behavior at a subconscious level (5). By subconscious we mean long term memory or automatic responses in stress like exams or clinical setting. According to NLP strategy people can be divided into Visual, Auditory, tactile and logical tendencies for learning (6).

Teaching surgery is the most challenging among all psychomotor skills. The out of operating room learning experiences are by simulations (including bench models, virtual reality trainers, computer generated models, surgical simulation in live animal models, and surgical simulation in human cadavers), web-based learning and mental imagery or mental practice. Mental imagery is the cognitive rehearsal of a task with or without physical movement (7). Despite evidence to support its usefulness, the exact role of mental imagery in surgical training has yet to be clearly defined, and there is no ideal way to use this technique. The purpose of this study was to test the effect of NLP-based teaching strategy on the knowledge and attitude of senior OBGYN residents.

Materials and methods- This study was a quasi-experimental research about the effect of NLP-based material on the knowledge and attitude of senior level OBGYN residents. Thirty-two residents were selected according to their scores on National Board Exam (written section). The subjects were randomly assigned into two groups. For the experimental group a binaural audio file of brain alpha-wave arousal (primer) followed by a traditional audio file on describing an unfamiliar oncology surgical procedure was played. For the control group the primer was a regular light music followed by traditional audio file based on reading and repeating the same operation. Then a knowledge test was administered for both groups. Using SPSS crosstab analysis, the groups were not significantly different in background knowledge of the surgery (table 1, 2). The statistical t-test analysis revealed that the experimental group could perform better on post test (table 3). Yet, the difference was not statistically significant. A boot strapping test showed that by increasing the number of subjects in the computation, the test would show statistical difference (table4). The subjects in both groups had positive attitude to learning by listening. More residents (80%) in the control group suggested video or pictures to be provided with audio files than the experiment (70%).

Conclusion- Considering the expense of simulation-based curriculum for teaching surgery, instruction based on listening is an efficient teaching strategy. By adding Neuro Linguistic Programming principles into this instruction, instructors can introduce variety and enthusiasm to learners of surgery.

Key words: teaching strategies – surgery – mental imagery – NLP-

Table 1- Scores are not statistically different in terms of background knowledge.

ANOVA Table

Score* groups		Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)	2.167	2	1.084	1.134	.336
Within Groups		27.708	29	.955		
Total		29.875	31			

Table2-Although ANOVA test could compare means in terms of covariate (background knowledge), a T test was done which confirms the results of ANOVA test.

Independent Samples Test

scores	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	.676	.418	-1.216	26	.235	-.431	.354	-1.159	.297
Equal variances not assumed			-1.234	25.938	.228	-.431	.349	-1.148	.287

Table3- The mean score is better in the experiment group. Yet the difference was not significant.

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
نهایی	Equal variances assumed	.115	.737	1.446	30	.159	7.059	4.883
	Equal variances not assumed			1.437	28.538	.162	7.059	4.914

Table4- Bootstrapping of data to see if the number of subject can make them statistically different at 95% confidence interval.

Bootstrap for Independent Samples Test

		Mean Difference	Bootstrap[a] Bias	Std. Error	Sig. (2-tailed)	95% Confidence Interval Lower	Upper
لهابي	Equal variances assumed	7.059	-.127	3.006	.030	1.067	13.165
	Equal variances not assumed	7.059	-.127	3.006	.026	1.067	13.165

a. Unless otherwise noted, bootstrap results are based on 1000 stratified bootstrap samples

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